Space Weather Highlights **SWPC PRF 2214**
29 January - 04 February 2018 **05 February 2018**

Solar activity was at very low levels from 29 Jan - 03 Feb. Low levels were observed on 04 Feb as new Region 2699 (S04, L=171, class/area Hsx/080 on 04 Feb) produced a C1 flare at 04/2024 UTC. The region also produced numerous B-class flares after rotating onto the disk. No Earth-directed CME activity was observed during the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at moderate levels on 29 Jan with a peak flux of 130 pfu observed at 29/0005 UTC. Normal levels were observed from 30 Jan - 04 Feb.

Geomagnetic field activity was at mostly quiet levels with isolated unsettled intervals observed early on 30 Jan and again late on 31 Jan.

Space Weather Outlook
05 February - 03 March 2018

Solar activity is expected to be to be at mostly very low levels with a slight chance for low activity through 16 Feb due to the emergence of Region 2699. Very low levels are anticipated from 17-28 Feb after the departure of Region 2699. A slight chance for low levels is possible from 01-03 Mar due to the return of old Region 2699.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal levels from 05-14 Feb and again from 26 Feb-03 Mar. Moderate levels are likely from 15-25 Feb due to influence from recurrent CH HSSs.

Geomagnetic field activity is expected to be at quiet to unsettled levels on 05 Feb, 15-17 Feb and 20-22 Feb, with isolated active periods likley on 16 Feb. This activity is due to influence from recurrent CH HSSs. Mostly quiet conditions are expected for the remainder of the outlook period.

Daily Solar Data

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10^{-6} hemi.)	X-ray Background Flux	Flares						
					X-ray			Optical			
					C	M	X	S	1	2	3	4
29 January	68	0	0	A2.0	0	0	0	0	0	0	0	0
30 January	69	13	10	A2.1	0	0	0	0	0	0	0	0
31 January	69	13	0	A2.1	0	0	0	0	0	0	0	0
01 February	69	0	0	A2.3	0	0	0	0	0	0	0	0
02 February	69	11	10	A2.4	0	0	0	0	0	0	0	0
03 February	69	0	0	A3.4	0	0	0	0	0	0	0	0
04 February	73	11	80	A3.7	1	0	0	3	1	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ^{2} -day -sr)			Electron Fluence (electrons/cm^2 -day -sr)		
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
29 January		3.9e+05	1.5e+04	3.3e+03	3.2e+06	
30 January		3.3e+05	1.6e+04	3.8e+03	1.4e+06	
31 January		4.3e+05	1.6e+04	3.5e+03	9.0e+05	
01 February		3.9e+05	1.6e+04	3.5e+03	1.1e+06	
02 February		4.2e+05	1.6e+04	3.4e+03	1.8e+06	
03 February		4.4e+05	1.6e+04	3.5e+03	1.9e+06	
04 February		4.3e+05	1.6e+04	3.6e+03	1.1e+06	

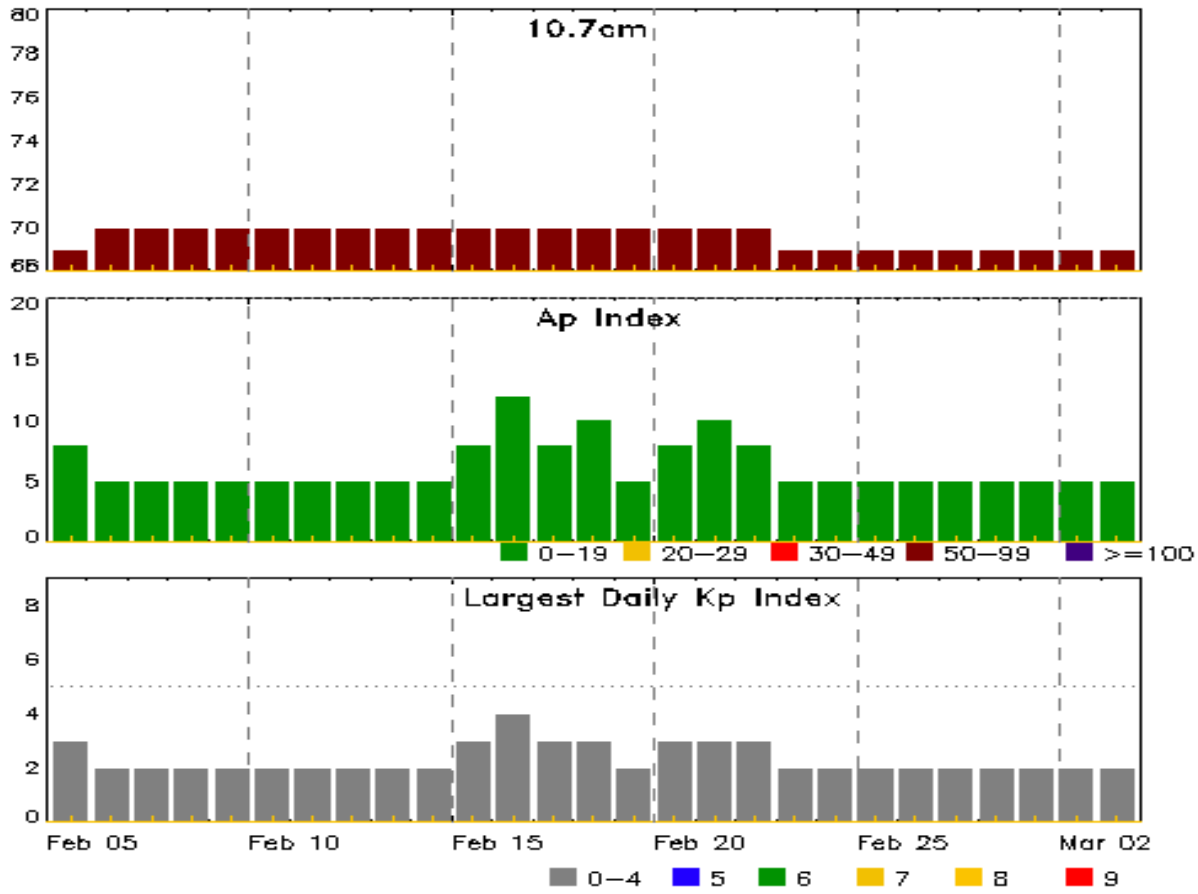
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
29 January	3	1-0-1-2-1-1-1-1	5	0-0-1-3-3-1-0-0	4	1-0-2-2-1-1-1-1
30 January	3	0-2-2-0-1-1-1-0	2	0-0-2-2-0-0-0-0	5	1-3-2-1-1-0-1-1
31 January	5	0-0-2-2-2-2-1-2	16	0-0-4-5-5-1-0-1	7	0-0-2-2-2-2-1-3
01 February	2	2-0-0-1-0-0-1-1	2	1-0-1-1-0-0-0-1	4	2-1-0-1-0-0-1-1
02 February	3	2-1-1-1-1-1-0-1	2	1-0-2-1-0-0-0-0	4	2-1-1-1-1-1-0-0
03 February	2	0-0-1-0-1-1-1-1	3	0-0-1-3-1-0-0-0	3	0-0-1-1-0-1-2-1
04 February	3	0-1-0-1-1-1-2-1	1	0-0-0-1-0-0-1-0	2	0-1-0-1-0-1-2-1

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
No Alerts or Warnings Issued		

Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
05 Feb	69	8	3	19 Feb	70	5	2
06	70	5	2	20	70	8	3
07	70	5	2	21	70	10	3
08	70	5	2	22	70	8	3
09	70	5	2	23	69	5	2
10	70	5	2	24	69	5	2
11	70	5	2	25	69	5	2
12	70	5	2	26	69	5	2
13	70	5	2	27	69	5	2
14	70	5	2	28	69	5	2
15	70	8	3	01 Mar	69	5	2
16	70	12	4	02	69	5	2
17	70	8	3	03	69	5	2
18	70	10	3				

Energetic Events

	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
Date	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV

No Events Observed

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
30 Jan	1735	1739	1746	B1.3			2697
04 Feb	1906	1922	1927	B6.4	SF	S09E80	2699
04 Feb	1946	1951	1955	B3.7	SF	S09E80	2699
04 Feb	2018	2024	2030	C1.1			2699
04 Feb	2046	2059	2107	B2.6	SF	S09E80	2699
04 Feb	2110	2115	2118	B7.1			2699
04 Feb	2110	2125	2132		1F	S09E80	2699
04 Feb	2228	2245	2252	B3.0			2699
04 Feb	2320	2325	2329	B3.1			2699

Region Summary

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 2697												
30 Jan	S10E48	263	10	3	Bxo	3	B								
31 Jan	S09E33	265	0	3	Axx	3	A								
01 Feb	S09E19	266	plage												
02 Feb	S09E05	266	plage												
03 Feb	S09W09	267	plage												
04 Feb	S09W23	268	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 266

			Region 2698												
02 Feb	S03E77	194	10	2	Axx	1	A								
03 Feb	S03E62	196	plage												
04 Feb	S03E47	198	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 198

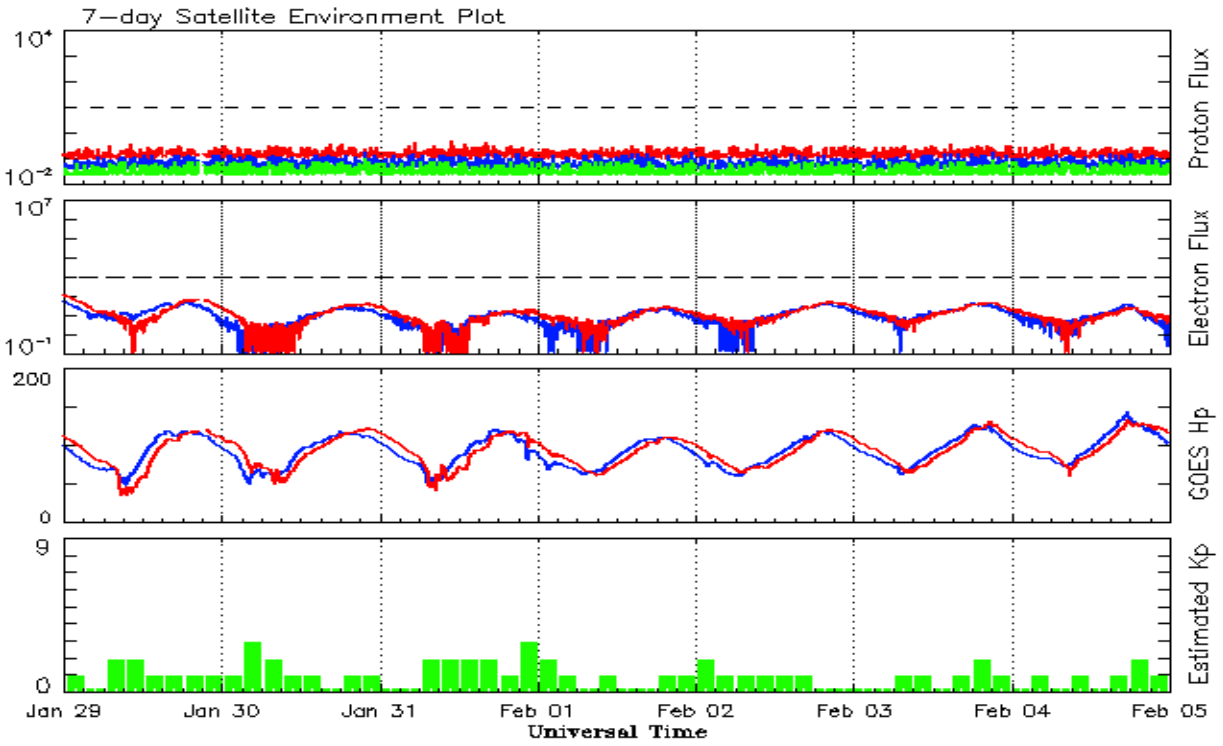
			Region 2699												
04 Feb	S04E74	171	80	2	Hsx	1	A	1			3	1			
								1	0	0	3	1	0	0	0

Still on Disk.
Absolute heliographic longitude: 171

Recent Solar Indices (preliminary)
Observed monthly mean values

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
Month	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
				2016					
February	56.0	33.8	0.61	49.6	31.5	103.5	98.1	10	12.0
March	40.9	32.5	0.80	47.7	30.2	91.6	96.6	11	11.8
April	39.2	22.7	0.58	45.0	28.7	93.4	95.3	10	11.8
May	48.9	30.9	0.64	42.1	26.9	93.1	93.2	12	11.7
June	19.3	12.3	0.65	39.0	24.9	81.9	90.4	9	11.4
July	36.8	19.4	0.53	36.5	23.1	85.9	87.7	10	11.2
August	50.4	30.1	0.60	34.2	21.6	85.0	85.5	10	11.2
September	37.4	26.8	0.72	32.1	19.9	87.8	83.7	16	11.3
October	30.0	20.0	0.67	31.1	18.9	86.1	82.5	16	11.6
November	22.4	12.8	0.57	29.4	17.9	78.7	81.1	10	11.6
December	17.6	11.1	0.64	28.1	17.1	75.1	80.0	10	11.4
				2017					
January	28.1	15.7	0.55	27.3	16.7	77.4	79.4	10	11.3
February	22.0	15.8	0.71	25.5	15.9	76.9	78.7	10	11.3
March	25.4	10.6	0.42	24.6	15.4	74.6	78.6	15	11.5
April	30.4	19.4	0.64	24.3	14.9	80.9	78.4	13	11.5
May	18.1	11.3	0.62	23.1	14.0	73.5	77.7	9	11.3
June	18.0	11.5	0.64	22.0	13.3	74.8	77.3	7	11.3
July	18.8	10.7	0.59	20.8	12.6	77.7	76.8	9	11.0
August	25.0	19.6	0.80			77.9		12	
September	42.2	26.2	0.62			92.0		19	
October	16.0	7.9	0.49			76.4		11	
November	7.7	3.4	0.44			72.1		11	
December	7.6	4.9	0.64			71.5		8	
				2018					
January	7.8	4.0	0.51			70.0		6	

Note: Values are final except for the most recent 6 months which are considered preliminary. Cycle 24 started in Dec 2008 with an RI=1.7.



Weekly Geosynchronous Satellite Environment Summary
Week Beginning 29 January 2018

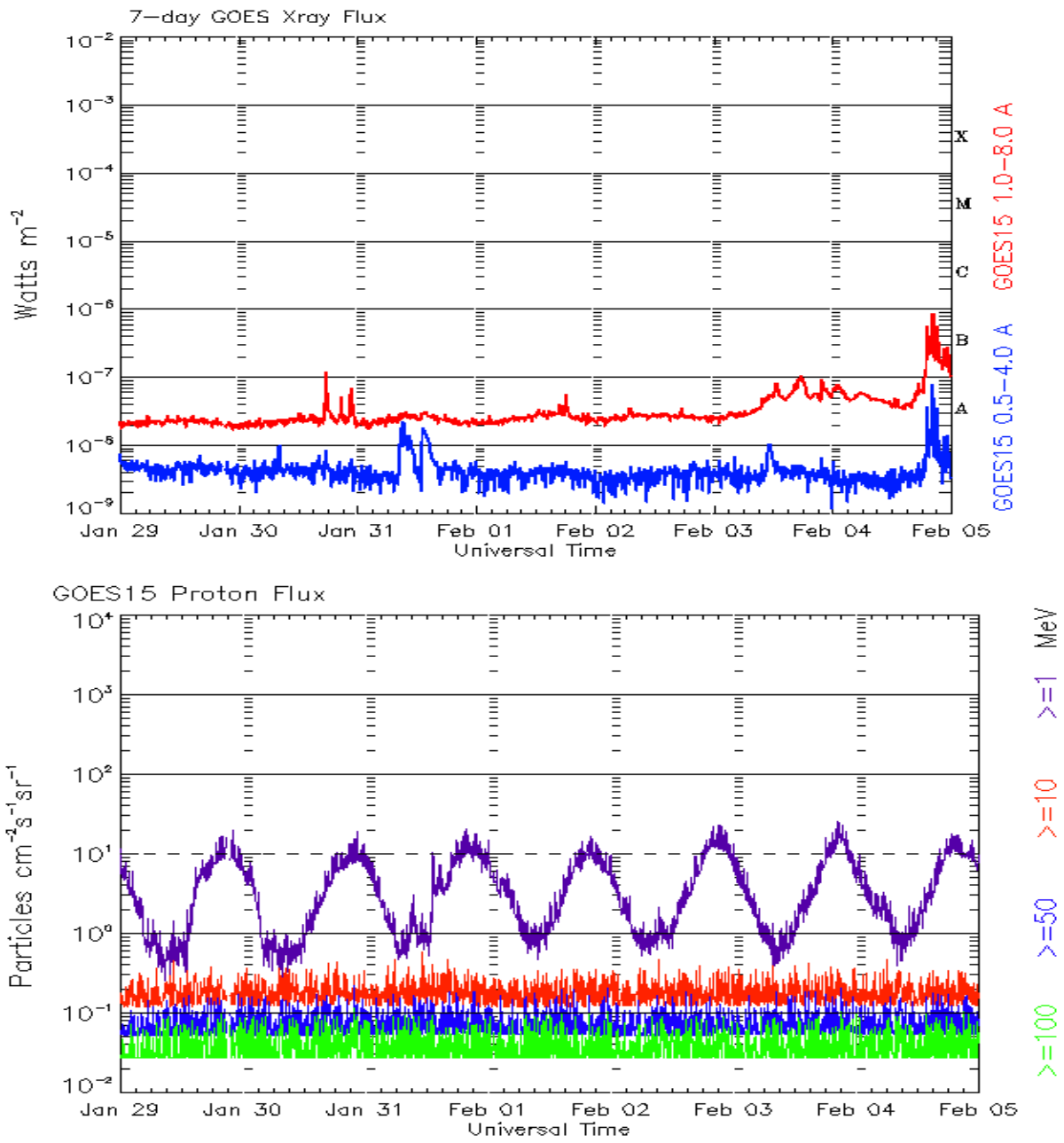
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm^2-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm^2-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

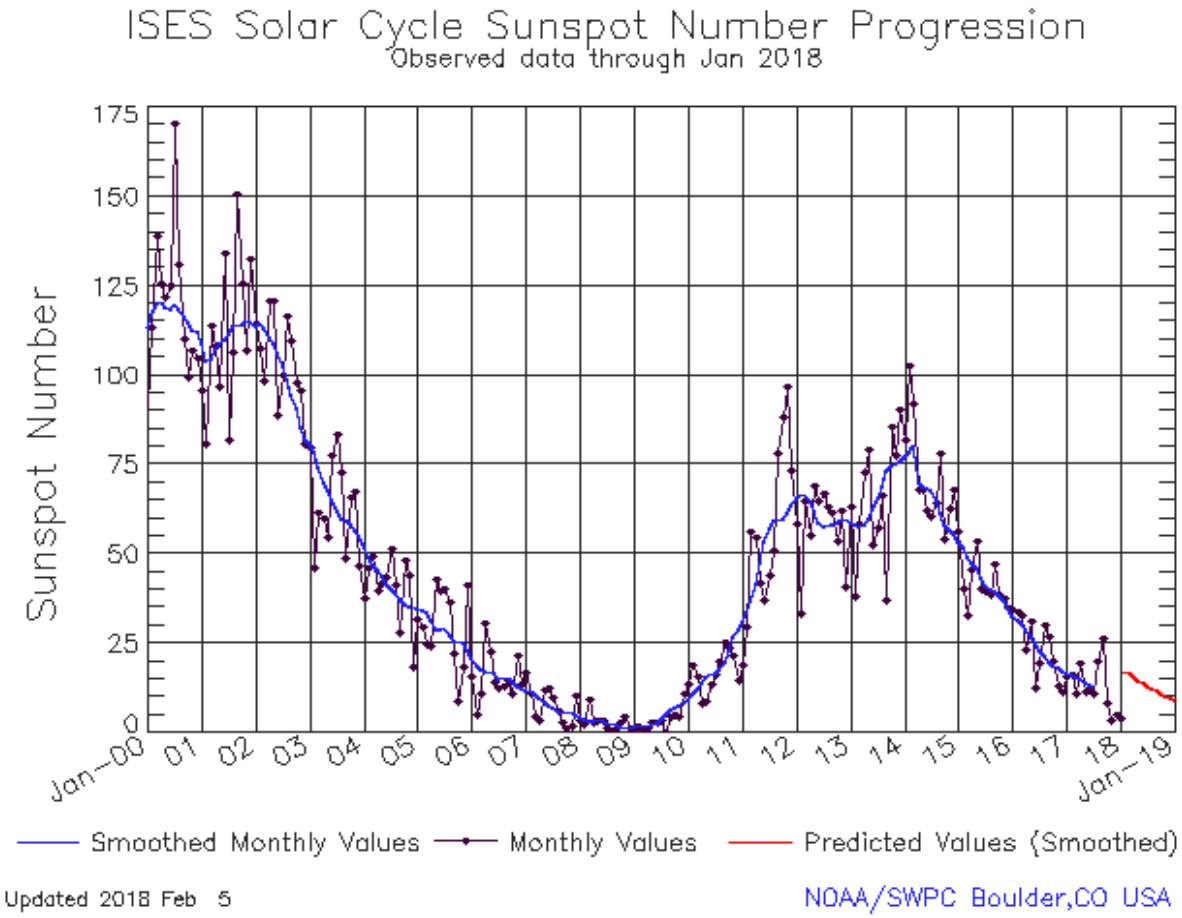
The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.



Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 29 January 2018

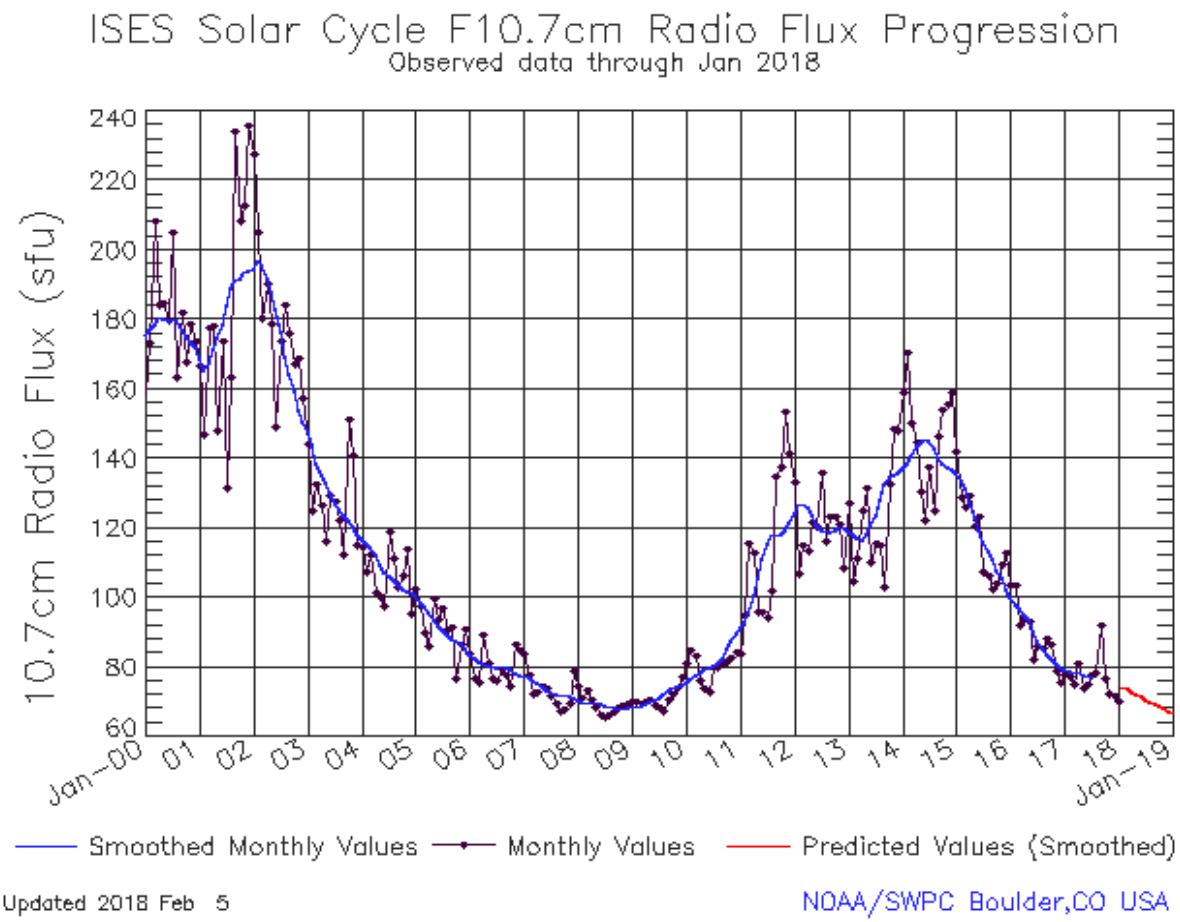
The x-ray plots contains five-minute averages x-ray flux (Watt/m^2) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral flux units (pfu = protons/cm^2 -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1, >10, >30, and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.



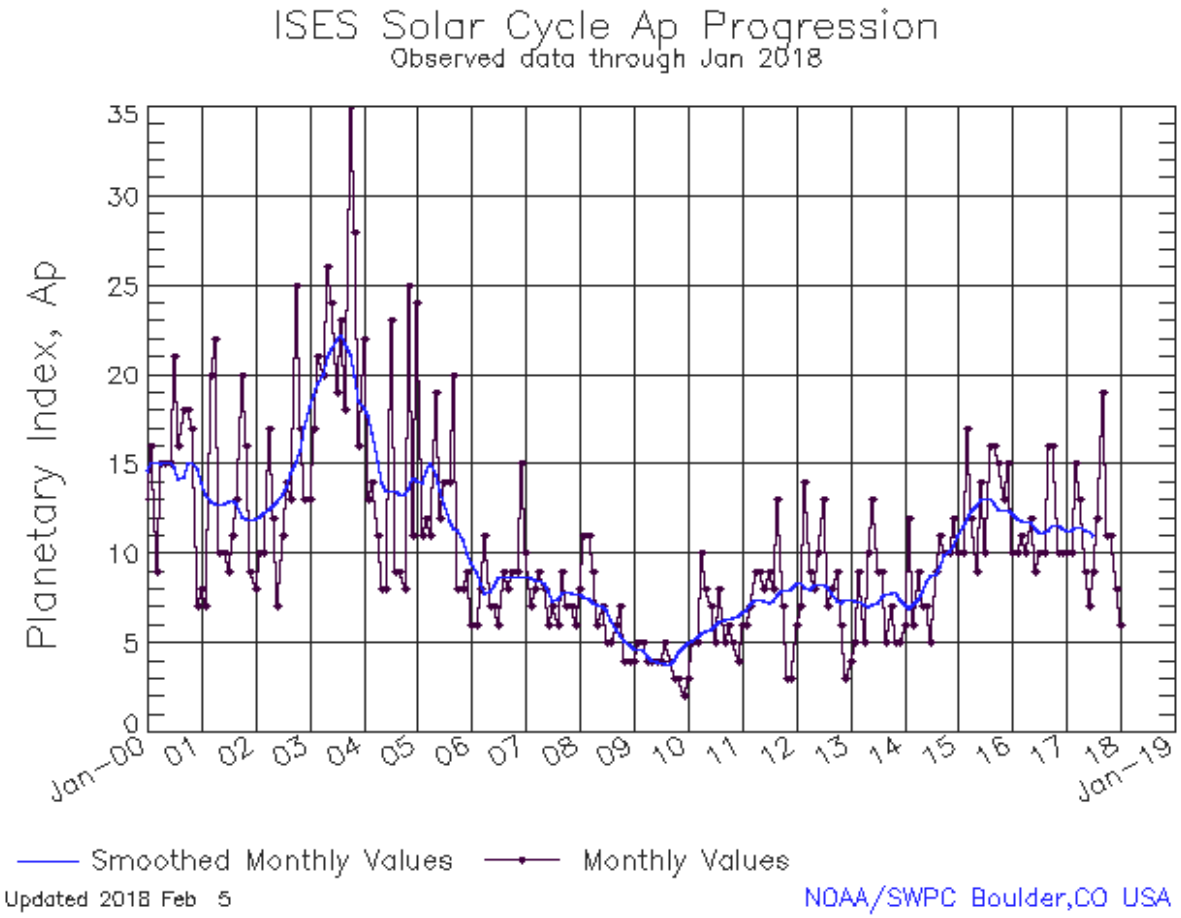
Smoothed Sunspot Number Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	9	10	11	13	15	16	17	17	20	23	27	29
	(1)	(2)	(3)	(5)	(5)	(6)	(7)	(7)	(8)	(9)	(9)	(10)
2011	19	30	56	54	42	37	44	51	78	88	97	73
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2012	58	33	64	55	69	65	67	63	61	53	62	41
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2013	63	38	58	72	79	53	57	66	37	86	78	90
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2014	82	102	92	68	68	62	60	64	78	54	62	68
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2015	56	40	33	45	53	40	40	39	47	38	37	35
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2016	34	34	33	23	31	12	19	30	27	20	13	11
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2017	16	16	11	19	11	12	11	20	26	8	3	5
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2018	4	17	16	15	15	14	13	12	12	11	10	10
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2019	9	8	8	7	7	6	6	6	5	5	4	4
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)



Smoothed F10.7cm Radio Flux Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	76	77	78	78	79	80	80	81	82	85	88	90
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2011	91	93	96	100	106	111	115	118	118	118	120	122
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2012	124	127	127	126	124	121	120	119	119	119	120	120
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2013	119	118	117	117	118	121	124	128	132	135	135	136
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2014	137	139	141	144	145	146	145	143	140	138	137	137
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2015	136	134	131	127	123	120	116	113	111	108	105	103
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2016	100	98	97	95	93	90	88	86	84	83	81	80
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2017	79	79	79	78	78	77	77	76	76	76	76	75
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(1)	(1)	(2)	(3)	(4)
2018	75	74	73	72	71	71	71	70	69	69	68	67
	(4)	(5)	(6)	(7)	(8)	(8)	(9)	(9)	(9)	(9)	(9)	(9)
2019	67	66	66	65	65	65	64	64	63	63	63	63
	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)



Solar Cycle Comparison charts are temporarily unavailable.

Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

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Notice: The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned. Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

The Weekly has been published continuously since 1951 and is available online since 1997.

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